

We claim:

1. A dermatologic hair-regrowth-inhibiting apparatus that is cordless and sufficiently compact as to be hand-held, comprising:

5 (a) a self-contained housing configured for gripping by a person's hand for cordless manipulation in a hair-regrowth-inhibiting procedure;

(b) a light source within the housing;

(c) an electrical circuit including one or more batteries within the housing for energizing the light source to produce output light pulses;

10 (d) a light path within the housing including an aperture through which eye-safe light pulses are propagated out of the housing having properties sufficient for at least temporary hair-regrowth inhibition; and

(e) an optical diffuser disposed along the light path so that an integrated radiance of the output light pulses is reduced to an eye-safe value; wherein the cordless apparatus has a total  
15 weight of no more than 1 kilogram, and occupies no more than 1500 cm<sup>3</sup> of volume; and whereby in use, the hair-regrowth-inhibiting apparatus produces a fluence on an epidermis of a subject undergoing treatment that is sufficient to at least temporarily inhibit hair regrowth and that has an integrated radiance insufficient to cause eye damage.

20 2. The apparatus of claim 1, further comprising a heatsink for contacting a region of the epidermis, having one or more thermal characteristics that serve to remove heat from the epidermis and wherein the temperature of the heatsink is at or above a normal skin temperature, wherein a normal skin temperature is a temperature of the skin when not being treated with the device.

25 3. The apparatus of claim 2, wherein the heatsink comprises a sapphire output window.

4. The apparatus of claim 1, further comprising a heatsink for contacting a region of the epidermis, having one or more thermal characteristics that serve to remove heat from the  
30 epidermis and wherein the temperature of the heatsink is maintained below a normal skin

temperature, wherein a normal skin temperature is a temperature of the skin when not being treated with the device.

5. The apparatus of claim 4, wherein the heatsink comprises a sapphire output window.

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6. The apparatus of claim 1, further comprising a contact sensor for permitting light pulses to be propagated from the housing only when substantial contact is made between the contact sensor and a contacted surface.

10 7. The apparatus of claim 6, wherein at least one light pulse is automatically triggered when said substantial contact is made.

8. The apparatus of claim 1, wherein a light pulse emitted at the aperture has a spot size not greater than  $5\text{ cm}^2$ .

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9. The apparatus of claim 1, wherein a light pulse emitted at the aperture has a spot size not less than  $0.25\text{ cm}^2$ .

10. The apparatus of claim 9, wherein a light pulse emitted at the aperture has a spot size not greater than  $5\text{ cm}^2$ .

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11. The apparatus of claim 1, wherein the light source includes one or more diode lasers.

12. The apparatus of claim 11, wherein the one or more diode lasers includes one or more laser diode bars each comprising multiple laser diode emitters.

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13. The apparatus of claim 12, wherein the one or more laser diode bars are thermally coupled to a fan-cooled heatsink.

30 14. The apparatus of claim 1, wherein the light source is divergent.

15. The apparatus of claim 1, wherein the light source comprises one or more flashlamps.

16. The apparatus of claim 1, wherein the light source comprises one or more light emitting diodes.

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17. The apparatus of claim 1, wherein the output light pulse has a bandwidth of 2 nanometers or more.

18. The apparatus of claim 1, wherein a majority of the energy of a light pulse emitted by the apparatus is between 700 nm and 1100 nm.

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19. The apparatus of claim 1, wherein a light pulse emitted by the apparatus has a duration not more than 1 second.

20. The apparatus of claim 1, wherein a light pulse emitted by the apparatus has a duration not less than 10 milliseconds.

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21. The apparatus of claim 20, wherein a light pulse emitted by the apparatus has a duration not more than 1 second.

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22. The apparatus of claim 21, wherein a light pulse emitted by the apparatus has a duration not less than 200 milliseconds.

23. The apparatus of claim 22, a light pulse emitted by the apparatus has a duration not more than 600 milliseconds.

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24. The apparatus of claim 1, wherein a light pulse emitted by the apparatus has a peak power not less than 10 watts.

25. The apparatus of claim 1, wherein a light pulse emitted by the apparatus has a peak power not more than 120 watts.

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26. The apparatus of claim 25, wherein a light pulse emitted by the apparatus has a peak power not less than 10 watts.

5 27. The apparatus of claim 1, wherein a light pulse emitted by the apparatus has an output fluence of not less than  $4 \text{ J/cm}^2$  and has a fluence of less than a maximum permissible exposure (MPE) at the eye of a person, such MPE having a value in  $\text{J/cm}^2$  equal to  $1.8 \times 10^{-3} t^{0.75} C_4 C_6$ , where  $C_4 = 1$  for 400 nm to 700 nm light and  $C_4 = 10^{0.002(\lambda-700)}$  for infrared wavelengths  $\lambda$  in nm from 700 nm to 1050 nm and  $C_4 = 5$  for 1050 nm to 1100 nm light, and  $C_6$  is a number between  
10 1 and 66.7 for a diffuse source, and  $t$  is the pulse duration in seconds.

28. The apparatus of claim 27, wherein a light pulse emitted by the apparatus has a pulse duration not less than 10 milliseconds.

15 29. The apparatus of claim 28, wherein a light pulse emitted by the apparatus has a pulse duration not more than 1 second.

30. The apparatus of claim 29, wherein a majority of the energy of a light pulse emitted by the apparatus is between 700 nm and 1100 nm.

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31. The apparatus of claim 30, wherein a light pulse emitted by the apparatus has a bandwidth of 40 nm or less.

25 32. The apparatus of claim 27, wherein a light pulse emitted by the apparatus has a peak power not more than 120 watts.

33. The apparatus of claim 32, wherein a light pulse emitted by the apparatus has a peak power not less than 10 watts.

30 34. The apparatus of claim 27, wherein a light pulse emitted at the aperture has a spot size not less than  $0.25 \text{ cm}^2$ .

35. The apparatus of claim 34, wherein a light pulse emitted at the aperture has a spot size not greater than 5 cm<sup>2</sup>.

5 36. The apparatus of claim 1, wherein the electrical circuit comprises a supercapacitor for energizing the light source.

37. The apparatus of claim 1, wherein the electrical circuit comprises a direct drive electrical circuit for energizing the light source.

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38. The apparatus of claim 1, wherein the optical diffuser comprises a reflective diffuser.

39. The apparatus of claim 1, further comprising a mixer along the light path for distributing light more uniformly at the aperture.

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40. The apparatus of claim 1, wherein a principal optical axis of light emitted from the light source striking the diffuser is not parallel to the normal of a surface of the diffuser.

41. The apparatus of claim 40, wherein the light source comprises one or more laser diode bars.

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42. The apparatus of claim 1, further comprising an audible feedback component.

43. A dermatologic hair-regrowth-inhibiting apparatus that is cordless and sufficiently compact as to be hand-held, comprising:

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(a) a self-contained housing configured for gripping by a person's hand for cordless manipulation in a hair-regrowth-inhibiting procedure;

(b) a light source within the housing;

(c) an electrical circuit including one or more batteries within the housing for energizing the light source to produce output light pulses; and

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(d) a light path within the housing including an aperture through which eye-safe light pulses are propagated out of the housing, wherein

(1) a light pulse emitted by the apparatus has an output fluence sufficient for at least temporary hair-regrowth inhibition, and has a fluence that is less than a maximum permissible exposure (MPE) at the eye of a person, such MPE having a value in  $\text{J}/\text{cm}^2$  equal to  $1.8 \times 10^{-3} t^{0.75} C_4 C_6$ , where  $C_4 = 10^{0.002(\lambda-700)}$  for infrared wavelengths  $\lambda$  in nm from 700 nm to 1050 nm and  $C_4 = 5$  for 1050 nm to 1000 nm, and  $C_6$  is a number between 1 and 66.7 for a diffuse source, and  $t$  is the pulse duration in seconds, and

(2) a majority of the energy of the light pulse is contained within a spectral band of 700 nm to 1100 nm, and

(3) the light pulse has a duration between 10 milliseconds and one second, and

(4) the light pulse emitted by the apparatus has an output fluence between  $4 \text{ J}/\text{cm}^2$  and  $100 \text{ J}/\text{cm}^2$ , and

whereby in use, the hair-regrowth-inhibiting apparatus produces a fluence on an epidermis of a subject undergoing treatment that is sufficient to at least temporarily inhibit hair regrowth and that has an integrated radiance insufficient to cause eye damage.

44. The apparatus of claim 43, further comprising a heatsink for contacting a region of the epidermis, having one or more thermal characteristics that serve to remove heat from the epidermis and wherein the temperature of the heatsink is at or above a normal skin temperature, wherein a normal skin temperature is a temperature of the skin when not being treated with the device.

45. The apparatus of claim 44, wherein the heatsink comprises a sapphire output window.

46. The apparatus of claim 43, further comprising a heatsink for contacting a region of the epidermis, having one or more thermal characteristics that serve to remove heat from the epidermis and wherein the temperature of the heatsink is maintained below a normal skin temperature, wherein a normal skin temperature is a temperature of the skin when not being treated with the device.

47. The apparatus of claim 46, wherein the heatsink comprises a sapphire output window.

48. The apparatus of claim 43, further comprising a contact sensor for permitting light pulses to be propagated from the housing only when substantial contact is made between the contact sensor and a contacted surface.

5 49. The apparatus of claim 48, wherein a light pulse is automatically triggered when said substantial contact is made.

50. The apparatus of claim 43, wherein the cordless apparatus has a total weight of no more than 1 kilogram.

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51. The apparatus of claim 43, wherein the cordless apparatus has a total weight of no more than 700 grams.

15 52. The apparatus of claim 43, wherein the cordless apparatus occupies a volume of no more than 1500 cm<sup>3</sup>.

53. The apparatus of claim 43, wherein the cordless apparatus occupies a volume of no more than 700 cm<sup>3</sup>.

20 54. The apparatus of claim 43, wherein the light pulse emitted at the aperture has a spot size not greater than 5 cm<sup>2</sup>.

55. The apparatus of claim 43, wherein the light pulse emitted at the aperture has a spot size not less than 0.25 cm<sup>2</sup>.

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56. The apparatus of claim 55, wherein the light pulse emitted at the aperture has a spot size not greater than 5 cm<sup>2</sup>.

30 57. The apparatus of claim 43, wherein the light source comprises one or more diode laser bars each comprising multiple laser diode emitters.

58. The apparatus of claim 43, wherein the light source comprises two or more diode laser bars each comprising multiple laser diode emitters.

59. The apparatus of claim 43, wherein the light source comprises one or more laser diode bars that are thermally coupled to a fan-cooled heatsink.

60. The apparatus of claim 43, wherein the light source is divergent.

61. The apparatus of claim 43, wherein the light source comprises one or more flashlamps.

62. The apparatus of claim 43, wherein the light source comprises one or more light emitting diodes.

63. The apparatus of claim 43, wherein the light pulse emitted by the apparatus has a bandwidth of 2 nanometers or more.

64. The apparatus of claim 43, wherein the light pulse emitted by the apparatus has a pulse duration not less than 200 milliseconds.

65. The apparatus of claim 64, wherein the light pulse emitted by the apparatus has a pulse duration not more than 600 milliseconds.

66. The apparatus of claim 43, wherein the light pulse emitted by the apparatus has a peak power not less than 10 watts.

67. The apparatus of claim 43, wherein the light pulse emitted by the apparatus has a peak power not more than 120 watts.

68. The apparatus of claim 67, wherein the light pulse emitted by the apparatus has a peak power not less than 10 watts.

69. The apparatus of claim 43, wherein the electrical circuit does not comprise one or more storage capacitors for producing electrical pulses that energize the light source when such storage capacitor or capacitors are discharged.
- 5    70. The apparatus of claim 43, wherein the electrical circuit does not comprise a transformer.
71. The apparatus of claim 43, wherein the electrical circuit comprises a direct drive electrical circuit.
- 10   72. The apparatus of claim 43, further comprising an optical diffuser disposed along the light path so that an integrated radiance of the output light pulses is reduced.
73. The apparatus of claim 72, wherein the optical diffuser comprises a transmissive diffuser.
- 15   74. The apparatus of claim 72, wherein the optical diffuser comprises a reflective diffuser.
75. The apparatus of claim 43, further comprising a mixer along the light path for distributing light more uniformly at the aperture.
- 20   76. The apparatus of claim 43, wherein a principal optical axis of light emitted from the light source and striking the diffuser is not parallel to the normal of the surface of the diffuser.
77. The apparatus of claim 76, wherein the light source comprises one or more laser diode bars.
- 25   78. The apparatus of claim 43, further comprising an audible feedback component.
79. A dermatologic hair-regrowth-inhibiting apparatus that is cordless and sufficiently compact as to be hand-held, comprising:
- 30        (a) a self-contained housing configured for gripping by a person's hand for cordless manipulation in a hair-regrowth-inhibiting procedure;
- (b) one or more diode laser light sources within the housing;

(c) an electrical circuit within the housing for energizing the diode laser light source to produce output light pulses; and

(d) a light path within the housing including an aperture through which eye-safe light pulses are propagated out of the housing, and wherein

5 (1) a light pulse emitted by the apparatus has an output fluence that is sufficient for at least temporary hair-regrowth inhibition, and a fluence that is less than a maximum permissible exposure (MPE) at the eye of a person, such MPE having a value in  $\text{J}/\text{cm}^2$  equal to  $1.8 \times 10^{-3} t^{0.75} C_4 C_6$ , where  $C_4 = 10^{0.002(\lambda-700)}$  for infrared wavelengths  $\lambda$  in nm from 700 nm to 1050 nm and  $C_4 = 5$  for 1050 nm to 1100 nm light, and  $C_6$  is a number between 1 and 66.7 for a  
10 diffuse source, and  $t$  is the pulse duration in seconds, and

(2) a majority of the energy of the light pulse emitted by the apparatus is contained within a spectral band of 700 nm to 1100 nm, and

(3) light pulses are emitted at a repetition rate between 0.1 Hz and 2 Hz, and

15 (4) the light pulse emitted by the apparatus has a pulse duration between 10 milliseconds and 1 second, and

(5) the light pulse emitted by the apparatus has a peak power between 10 watts and 120 watts, and

(6) the light pulse emitted by the apparatus has a spot size between  $0.25 \text{ cm}^2$  and  $5 \text{ cm}^2$ , and

20 (7) the light pulse emitted by the apparatus has an output fluence between  $4 \text{ J}/\text{cm}^2$  and  $100 \text{ J}/\text{cm}^2$ , and

(8) the cordless apparatus has a total weight of no more than 1 kilogram, and

25 (9) the cordless apparatus occupies no more than  $1500 \text{ cm}^3$  of volume, and whereby in use, the hair-regrowth-inhibiting apparatus produces a fluence on an epidermis of a subject undergoing treatment that is sufficient to at least temporarily inhibit hair regrowth and that has an integrated radiance insufficient to cause eye damage.

80. The apparatus of claim 79, wherein the electrical circuit comprises a direct drive electrical circuit.

81. The apparatus of claim 79, further comprising a heatsink for contacting a region of the epidermis, having one or more thermal characteristics that serve to remove heat from the epidermis and wherein the temperature of the heatsink is at or above a normal skin temperature, wherein a normal skin temperature is a temperature of the skin when not being treated with the device.

82. The apparatus of claim 81, wherein the heatsink comprises a sapphire output window.

83. The apparatus of claim 79, further comprising a heatsink for contacting a region of the epidermis, having one or more thermal characteristics that serve to remove heat from the epidermis and wherein the temperature of the heatsink is maintained below a normal skin temperature, wherein a normal skin temperature is a temperature of the skin when not being treated with the device.

84. The apparatus of claim 83, wherein the heatsink comprises a sapphire output window.

85. The apparatus of claim 79, further comprising a contact sensor for permitting light pulses to be propagated from the housing only when substantial contact is made between the contact sensor and a contacted surface.

86. The apparatus of claim 85, wherein light pulses are automatically triggered when said substantial contact is made.

87. The apparatus of claim 79, further comprising an audible feedback component.

88. The apparatus of claim 79, further comprising an optical diffuser disposed along the light path so that an integrated radiance of the output light pulses is reduced.

89. The apparatus of claim 88, wherein the optical diffuser comprises a transmissive diffuser.

90. The apparatus of claim 88, wherein the optical diffuser comprises a reflective diffuser.

91. The apparatus of claim 79, further comprising a mixer along the light path for distributing light more uniformly at the aperture.

5 92. A dermatologic hair-regrowth-inhibiting apparatus that is cordless and sufficiently compact as to be hand-held, comprising:

(a) a self-contained housing configured for gripping by a person's hand for cordless manipulation in a hair-regrowth-inhibiting procedure;

(b) one or more flashlamp light sources within the housing;

10 (c) an electrical circuit within the housing for energizing the flashlamp light source to produce output light pulses; and

(d) a light path within the housing including an aperture through which eye-safe light pulses are propagated out of the housing, and wherein

(1) a light pulse emitted by the apparatus has an output fluence that is sufficient  
15 for at least temporary hair-regrowth inhibition, and a fluence that is less than a maximum permissible exposure (MPE) at the eye of a person, such MPE having a value in  $\text{J}/\text{cm}^2$  equal to  $1.8 \times 10^{-3} t^{0.75} C_4 C_6$ , where  $C_4 = 1$  for 400 nm to 700 nm light and  $C_4 = 10^{0.002(\lambda-700)}$  for infrared wavelengths  $\lambda$  in nm from 700 nm to 1050 nm and  $C_4 = 5$  for 1050 nm to 1100 nm light, and  $C_6$  is a number between 1 and 66.7 for a diffuse source, and  $t$  is the pulse duration in seconds, and

20 (2) a majority of the energy of the light pulse is contained within a spectral band of 500 nm to 1100 nm, and

(3) a repetition rate of light pulses emitted by the apparatus is between 0.1 Hz and 2 Hz, and

(4) the light pulse emitted by the apparatus has a pulse duration between 10  
25 milliseconds and 1 second, and

(5) the light pulse emitted by the apparatus has a peak power between 10 watts and 120 watts, and

(6) the light pulse emitted by the apparatus has a spot size between  $0.25 \text{ cm}^2$  and  $5 \text{ cm}^2$ , and

30 (7) the light pulse emitted by the apparatus has an output fluence between  $4 \text{ J}/\text{cm}^2$  and  $100 \text{ J}/\text{cm}^2$ , and

(8) the cordless apparatus has a total weight of no more than 1 kilogram, and  
(9) the cordless apparatus occupies no more than 1500 cm<sup>3</sup> of volume, and  
whereby in use, the hair-regrowth-inhibiting apparatus produces a fluence on an epidermis of a  
subject undergoing treatment that is sufficient to at least temporarily inhibit hair regrowth and  
5 that has an integrated radiance insufficient to cause eye damage.

93. The apparatus of claim 92, further comprising a heatsink for contacting a region of the  
epidermis, having one or more thermal characteristics that serve to remove heat from the  
epidermis and wherein the temperature of the heatsink is at or above a normal skin temperature,  
10 wherein a normal skin temperature is a temperature of the skin when not being treated with the  
device.

94. The apparatus of claim 93, wherein the heatsink comprises a sapphire output window.

15 95. The apparatus of claim 92, further comprising a heatsink for contacting a region of the  
epidermis, having one or more thermal characteristics that serve to remove heat from the  
epidermis and wherein the temperature of the heatsink is maintained below a normal skin  
temperature, wherein a normal skin temperature is a temperature of the skin when not being  
treated with the device.

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96. The apparatus of claim 95, wherein the heatsink comprises a sapphire output window.

97. The apparatus of claim 92, further comprising a contact sensor for permitting light pulses to  
be propagated from the housing only when substantial contact is made between the contact  
25 sensor and a contacted surface.

98. The apparatus of claim 97, wherein a light pulse is automatically triggered when said  
substantial contact is made.

30 99. The apparatus of claim 92, further comprising an audible feedback component.

100. The apparatus of claim 92, further comprising an optical diffuser disposed along the light path so that an integrated radiance of the output light pulses is reduced.

101. The apparatus of claim 100, wherein the optical diffuser comprises a transmissive diffuser.

102. The apparatus of claim 100, wherein the optical diffuser comprises a reflective diffuser.

103. The apparatus of claim 92, further comprising a mixer along the light path for distributing light more uniformly at the aperture.

104. A dermatologic hair-regrowth-inhibiting apparatus that is cordless and sufficiently compact as to be hand-held, comprising:

(a) a self-contained housing configured for gripping by a person's hand for cordless manipulation in a hair-regrowth-inhibiting procedure;

(b) one or more light emitting diode (LED) light sources within the housing;

(c) an electrical circuit within the housing for energizing the LED light source to produce output light pulses; and

(d) a light path within the housing including an aperture through which eye-safe light pulses are propagated out of the housing, wherein

(1) a light pulse emitted by the apparatus has an output fluence that is sufficient for at least temporary hair regrowth inhibition and a fluence that is less than a maximum permissible exposure (MPE) at the eye of a person, such MPE having a value in  $\text{J}/\text{cm}^2$  equal to  $1.8 \times 10^{-3} t^{0.75} C_4 C_6$ , where  $C_4 = 1$  for 400 nm to 700 nm light and  $C_4 = 10^{0.002(\lambda-700)}$  for infrared wavelengths  $\lambda$  in nm from 700 nm to 1050 nm and  $C_4 = 5$  for 1050 nm to 1100 nm light, and  $C_6$  is a number between 1 and 66.7 for a diffuse source, and  $t$  is the pulse duration in seconds, and

(2) a majority of the energy of the light pulse is contained within a spectral band of 600 nm to 1100 nm, and

(3) light pulses are emitted at a repetition rate between 0.1 Hz and 2 Hz, and

(4) the light pulse emitted by the apparatus has a pulse duration between 10 milliseconds and 1 second, and

(5) the light pulse emitted by the apparatus has a peak power between 10 watts and 120 watts, and

(6) the light pulse emitted by the apparatus has a spot size between  $0.25 \text{ cm}^2$  and  $5 \text{ cm}^2$ , and

5 (7) the light pulse emitted by the apparatus has an output fluence between  $4 \text{ J/cm}^2$  and  $100 \text{ J/cm}^2$ , and

(8) the cordless apparatus has a total weight of no more than 1 kilogram, and

(9) the cordless apparatus occupies no more than  $1500 \text{ cm}^3$  of volume, and  
whereby in use, the hair-regrowth-inhibiting apparatus produces a fluence on an epidermis of a  
10 subject undergoing treatment that is sufficient to at least temporarily inhibit hair regrowth and  
that has an integrated radiance insufficient to cause eye damage.

105. The apparatus of claim 104, wherein the electrical circuit comprises a direct drive electrical circuit.

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106. The apparatus of claim 104, further comprising a heatsink for contacting a region of the epidermis, having one or more thermal characteristics that serve to remove heat from the epidermis and wherein the temperature of the heatsink is at or above a normal skin temperature, wherein a normal skin temperature is a temperature of the skin when not being treated with the  
20 device.

107. The apparatus of claim 106, wherein the heatsink comprises a sapphire output window.

108. The apparatus of claim 104, further comprising a heatsink for contacting a region of the  
25 epidermis, having one or more thermal characteristics that serve to remove heat from the epidermis and wherein the temperature of the heatsink is maintained below a normal skin temperature, wherein a normal skin temperature is a temperature of the skin when not being treated with the device.

30 109. The apparatus of claim 108, wherein the heatsink comprises a sapphire output window.

110. The apparatus of claim 104, further comprising a contact sensor for permitting light pulses to be propagated from the housing only when substantial contact is made between the contact sensor and a contacted surface.
- 5 111. The apparatus of claim 110, wherein a light pulse is automatically triggered when said substantial contact is made.
112. The apparatus of claim 104, further comprising an audible feedback component.
- 10 113. The apparatus of claim 104, further comprising an optical diffuser disposed along the light path so that an integrated radiance of the output light pulses is reduced.
114. The apparatus of claim 113, wherein the optical diffuser comprises a transmissive diffuser.
- 15 115. The apparatus of claim 113, wherein the optical diffuser comprises a reflective diffuser.
116. The apparatus of claim 104, further comprising a mixer along the light path for distributing light more uniformly at the aperture.
- 20 117. A hair-regrowth-inhibiting method for cordlessly inhibiting hair regrowth, comprising:
- (a) gripping in a person's hand a self-contained housing assembly of a hair-regrowth-inhibiting device;
  - (b) positioning the housing assembly such that an output window component of the device contacts an epidermis of a same or different person;
  - 25 (c) energizing a light source with an electrical circuit including one or more batteries, each contained within the housing assembly, to produce output light pulses;
  - (d) transmitting the output light pulses generated by the light source along a light path within the housing including an aperture through which eye-safe light pulses are propagated from the housing assembly having properties sufficient for at least temporarily inhibiting hair
  - 30 regrowth;

(e) diffusing the output light pulses along the light path so that an integrated radiance of the output light pulses is reduced to an eye-safe value; and

(f) cordlessly manipulating the hand-held, dermatologic device in a hair-regrowth-inhibiting procedure, and

- 5 wherein the hair-regrowth-inhibiting device produces a fluence on the epidermis that is sufficient to at least temporarily inhibit hair regrowth and that has an integrated radiance insufficient to cause eye damage.

10 118. The method of claim 117, further comprising removing sufficient heat from the epidermis to reduce or prevent epidermal injury.

119. The method of claim 118, wherein the removing comprises contacting a region of the epidermis with a heatsink having one or more thermal characteristics that serve to remove sufficient heat from the contacted epidermis region to reduce or prevent epidermal injury.

15 120. The method of claim 117, wherein the cordless apparatus has a total weight of no more than 1 kilogram and occupies no more than  $1500\text{ cm}^3$  of volume.

20 121. The method of claim 117, further comprising permitting light pulses to be propagated from the housing only when substantial contact is made between a contact sensor and a contacted surface.

25 122. The method of claim 121, further comprising automatically triggering a light pulse when said contact is made.

123. The method of claim 117, wherein the transmitted output light pulses have a spot size at the aperture not greater than  $5\text{ cm}^2$ .

30 124. The method of claim 123, wherein the transmitted output light pulses have a spot size at the aperture not less than  $0.25\text{ cm}^2$ .

125. The method of claim 117, wherein the energized light source comprises one or more laser diodes.

126. The method of claim 125, wherein the one or more laser diodes comprise one or more laser diode bars each comprising multiple emitters.

127. The method of claim 125, wherein the one or more laser diodes comprise two or more laser diode bars each comprising multiple laser diode emitters.

128. The method of claim 125, further comprising removing heat generated by the laser diode bars through a heat sink in thermal contact with the diode bars.

129. The method of claim 117, wherein a light pulse from the energized light source has a pulse duration of not more than 1 second.

130. The method of claim 117, wherein a light pulse from the energized light source has a pulse duration of not less than 10 milliseconds.

131. The method of claim 130, wherein a light pulse from the energized light source has a pulse duration of not more than 1 second.

132. The method of claim 117, further comprising producing a light pulse having an output fluence of not less than  $4 \text{ J/cm}^2$  and a fluence at the eye of a person of less than a maximum permissible exposure (MPE), such MPE having a value in  $\text{J/cm}^2$  equal to  $1.8 \times 10^{-3} t^{0.75} C_4 C_6$ , where  $C_4 = 1$  for 400 nm to 700 nm light and  $C_4 = 10^{0.002(\lambda-700)}$  for infrared wavelengths  $\lambda$  in nm from 700 nm to 1050 nm and  $C_4 = 5$  for 1050 nm to 1100 nm light, and  $C_6$  is a number between 1 and 66.7 for a diffuse source, and  $t$  is the pulse duration in seconds.

133. The method of claim 117, wherein the energizing comprises at least partial discharge of a supercapacitor for energizing the light source.

134. The method of claim 117, wherein the energizing comprises direct drive energizing of the light source.

135. The method of claim 134, wherein the energizing comprises generating current pulses for generating light pulses without at least partial discharge of one or more storage capacitors, such that the one or more batteries do not charge such one or more storage capacitors, and instead the energizing comprises one or more batteries directly energizing a light source.

136. The method of claim 134, wherein the energizing comprises generating current pulses for generating light pulses without a transformer.

137. The method of claim 117, wherein a person performing the cordless manipulation of the method is a same person upon whose skin the light pulses are applied.

138. The method of claim 117, wherein a person performing the cordless manipulation of the method is a different person than the person upon whose skin the light pulses are applied.

139. The method of claim 117, further comprising mixing the light downstream of the light source for distributing light more uniformly at the output aperture.

140. The method of claim 117, further comprising lowering the output fluence below a maximum level using a switch for turning down the output fluence.

141. The method of claim 117, further comprising producing a light pulse having an output fluence between  $4 \text{ J/cm}^2$  and  $100 \text{ J/cm}^2$  and a fluence at the eye of a person of less than a maximum permissible exposure (MPE), such MPE having a value in  $\text{J/cm}^2$  equal to  $1.8 \times 10^{-3} t^{0.75} C_4 C_6$ , where  $C_4 = 10^{0.002(\lambda-700)}$  for infrared wavelengths  $\lambda$  from 700 nm to 1050 nm and  $C_4 = 5$  for 1050 nm to 1100 nm light, and  $C_6$  is a number between 1 and 66.7 for a diffuse source, and  $t$  is the pulse duration in seconds, and wherein a majority of the energy of the light pulse is contained within the spectral band of 700 nm to 1100 nm, and wherein a pulse duration of the light pulse is between 10 milliseconds and 1 second.

142. The method of claim 141, wherein light pulses are emitted at a repetition rate between 0.1 Hz and 2 Hz, have a peak power between 10 watts and 120 watts, and have a spot size between 0.25 cm<sup>2</sup> and 5 cm<sup>2</sup>, and wherein the cordless apparatus has a total weight of no more than 1

5 kilogram, and occupies no more than 1500 cm<sup>3</sup> of volume.

143. The method of claim 142, wherein the energizing comprises energizing one or more diode laser light sources.

10 144. The method of claim 142, wherein the energizing comprises energizing one or more flashlamp light sources.

145. The method of claim 142, wherein the energizing comprises energizing one or more light emitting diode light sources.

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